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5230 - Evaluation June 13, 1975

Insect evaluation in tornado damaged area

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On June 11, 1975, an insect evaluation was conducted on a portion of the Vernon Ranger District of the Kisatchie National Forest. The evaluation was conducted by personnel of the Forest Pest Management Group to determine existent or potential insect problems resulting from tornado damage sustained by a portion of the district on April 29, 1975. Tornado damage was concentrated in the southwest corner of the District. Approximately 1800 acres of 45 year-old slash and longleaf plantations were most severely affected by the storm. The nature of the storm resulted in some plantations being almost completely destroyed, while others received only minor damage. Most of the affected timber was completely uprooted, however, trees partially uprooted, trees with broken tops, and standing trees damaged by falling trees were also observed. Some fading tops were present in the downed timber, but for the most part, the affected timber retained green foliage.

Salvage operations were begun on the affected area approximately two weeks after the storm and were still in progress at the time of the evaluation. District personnel estimated that 13 MBF would be salvaged from the area. This estimate included downed timber, partially uprooted timber and damaged timber.

A primary concern of the evaluation was to determine the susceptibility of the remaining timber in the affected area to insect attack - particularly the southern pine beetle. The Vernon District has a history of southern pine beetle infestations, most of which have occurred in low, wet loblolly stands. In FY 1974, 36.6 MBF of sawtimber and 75.56 CCF of pulpwood was salvaged from southern pine beetle infestations on the District. The presence of the southern pine beetle in the District and stand disturbances resulting from the tornado could encourage southern pine beetle attack in the surrounding timber.

Six different ground checks were made along the path of the tornado through the District. Three checks were made along the perimeter of the path where damage was observed to be minimal, and three were made in the center of the storm's path where stand damage was greatest.

At each ground check, three trees were sampled for bark beetle presence by removing (1) 6x6 square inch section of bark from the lower, mid and upper portions of the tree bole. Trees sampled were completely uprooted and downed. At each ground check area, one standing but damaged tree was sampled at breast height for bark beetle presence.

Surrounding, unaffected trees were also observed for signs of bark beetle presence.

Of the six ground checked areas sampled, uprooted trees on three of the areas had Ips grandicolis in the upper portions of the bole. Advanced brood stages with callow adults were present. Brood densities averaged greater than 80 adults per square foot of bark surface. Gallery development was extensive, and in some of the sampled trees sawyer (Monochamus titillator) activity was observed.

Mid-bole and lower-bole sampling, on all six areas, showed no insect activity. In the standing but damaged trees, no insect activity was evident at breast height.

Stand disturbances from the tornado have created ideal conditions for insect attack in the remaining unaffected timber. Uprooted timber provides breeding material for Ips engraver beetles. Concentrated population build-ups of this species may result in attacks to nearby stands. I. grandicolis has been reported to attack healthy trees, especially after localized epidemics have occurred[1/]. No southern pine beetle activity was observed in the affected area, however, southern pine beetle attack may occur, especially in any timber damaged but left standing. Also, trees in nearby stands that may be weakened by possible Ips attack may thereby become susceptible to southern pine beetle attack.

The majority of the timber in the affected area is uprooted and lying on the ground. Southern pine beetles seldom attack downed timber, therefore, the danger in the uprooted timber which has not yet been salvaged is in the emergence of Ips which may attack nearby stands.

Prompt salvage action is the best preventive control measure that can be recommended at this time. Removing the downed timber as quickly as possible to prevent further build-up of Ips populations will aid in reducing future insect problems. The surrounding unaffected stands are under intense management (i.e., under optimum growth conditions), and southern pine beetle infestations seem unlikely without some predisposing factor, however, Ips attack may weaken these trees, thereby initiating southern pine beetle infestations.

Much of the affected area had already been salvaged. Personnel of the Vernon Ranger District should be commended for their prompt and thorough action. Avoidance of insect pest problems is contingent upon this type of management action. Uprooted timber, or damaged timber interspersed among unaffected trees may present a problem in terms of salvage. Under conditions in which the timber cannot be salvaged, District personnel should consider chemical treatment such as lindane applied to the affected trees prior to brood emergence.

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Enclosure

1/ Baker, W. L., 1972. Eastern Forest Insects. U.S.D.A., Forest Service, Misc. publ. No. 1175. 642 pp.